



Complete Summary

GUIDELINE TITLE

Primary open-angle glaucoma.

BIBLIOGRAPHIC SOURCE(S)

American Academy of Ophthalmology, Quality of Care Committee Retina Panel. Primary open-angle glaucoma. San Francisco (CA): American Academy of Ophthalmology (AAO); 2000. 36 p. [148 references]

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SCOPE

DISEASE/CONDITION(S)

Primary open-angle glaucoma (POAG), including low-tension glaucoma, residual stage of open-angle glaucoma, and glaucomatous atrophy of the optic disc.

GUIDELINE CATEGORY

Counseling
Diagnosis
Evaluation
Management
Risk Assessment
Screening
Treatment

CLINICAL SPECIALTY

Ophthalmology

INTENDED USERS

Allied Health Personnel
Health Plans
Physicians

GUIDELINE OBJECTIVE(S)

1. To provide useful information to practitioners for diagnosing and treating patients with primary open angle glaucoma.
2. To enhance the patient's health and quality of life by preserving visual function without causing untoward effects from therapy. The goals are as follows:
 - Document the status of optic nerve structure and function on presentation
 - Estimate a pressure below which further optic nerve damage is unlikely to occur
 - Attempt to maintain intraocular pressure (IOP) at or below this target level by initiating appropriate therapeutic intervention(s)
 - Monitor the status of the optic nerve for further damage and reset the target IOP to a lower level if deterioration occurs
 - Minimize the side effects of management and their impact on the patient's vision, general health and quality of life
 - Educate and engage the patient in the management of his/her disease

TARGET POPULATION

Adult patients with primary open angle glaucoma

INTERVENTIONS AND PRACTICES CONSIDERED

1. Comprehensive ophthalmologic evaluation with the addition of, or special attention to, those factors that particularly bear upon the diagnosis, course and treatment of primary open-angle glaucoma.
2. Physical examination including measurement of intraocular pressure with a Goldmann-type applanation tonometer, slit-lamp biomicroscopic examination of the anterior segment, gonioscopy, evaluation of the optic disc and retinal nerve fiber layer, documentation of optic nerve appearance, evaluation of the fundus, and evaluation of the visual field.
3. Medical management of primary open-angle glaucoma.
4. Surgical procedures including laser trabeculoplasty, filtering surgery and cyclodestructive surgery.
5. Patient education and counseling

MAJOR OUTCOMES CONSIDERED

- Stable optic nerve/retinal nerve fiber layer status
- Stable or decreased intraocular pressure
- Stable visual fields

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

In the process of revising the guideline, a detailed literature search of MEDLINE for articles in the English language was conducted on the subject of primary open-angle glaucoma for the years 1995-1999.

NUMBER OF SOURCE DOCUMENTS

815

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Ratings of strength of evidence:

I - Level I provides strong evidence in support of the statement. The design of the study allowed the issue to be addressed, and the study was performed in the population of interest, executed in such a manner as to produce accurate and reliable data, and analyzed using appropriate statistical methods. The study produced either statistically significant power and/or narrow confidence limits on the parameters of interest.

II - Level II provides substantial evidence in support of the statement. Although the study has many of the attributes of one that provides Level I support, it lacks one or more of the components of Level I.

III - Level III provides a consensus of expert opinion in the absence of evidence that meets Levels I and II.

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

The results of a literature search on the subject of primary open-angle glaucoma were reviewed by the Glaucoma Panel and used to prepare the recommendations, which they rated in two ways. The panel first rated each recommendation according to its importance to the care process. This "importance to the care process" rating represents care that the panel thought would improve the quality of the patient's care in a meaningful way. The panel also rated each recommendation on the strength of the evidence in the available literature to support the recommendation made.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Ratings of importance to care process

Level A, most important

Level B, moderately important

Level C, relevant, but not critical

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

External Peer Review

Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Guideline drafts are sent for review to national medical organizations such as the American Medical Association and the American Academy of Family Physicians, to ophthalmic organizations, and to other groups depending on the subject. Comments made by these reviewers were considered by the guideline authors.

These guidelines were reviewed by Council and approved by the Board of Trustees of the American Academy of Ophthalmology (February 2000).

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Ratings of importance (A-C), ratings of strength of evidence (I-III) and ratings of feasibility (a-c), are defined at the end of the Major Recommendations field.

Diagnosis

Comprehensive initial glaucoma evaluation

The comprehensive initial glaucoma evaluation includes all components of the comprehensive adult eye evaluation with the addition of, and special attention to,

those factors that specifically bear upon the diagnosis, course, and treatment of primary open-angle glaucoma.

History

- Family (A:II)(a), ocular and systemic history (A:III)(a)
- Pertinent records (A:III)(b)
- Ocular and systemic medications (A:III)(b)
- Ocular surgery (A:III)(a)
- Known local or systemic intolerance to the use of glaucoma medications (A:III)(b)
- Time of last use of glaucoma medications (B:III)(b)
- Severity and outcome of glaucoma in family members, including history of visual loss from glaucoma (B:III)(b)
- Assessment of the impact of visual function on daily living and activities (A:III)(b)

Physical Examination

- Pupil (B:II)(a)
- Slit-lamp biomicroscopic examination of the anterior segment (A:III)(a)
- Intraocular pressure (A:III)(a)
- Gonioscopy (A:III)(a)
- Evaluation of the optic nerve head and retinal nerve fiber layer (dilation of the pupil preferable) (A:III)(a)
- Documentation of optic nerve appearance (A:II)(a)
- Evaluation of the fundus (A:III)(a)
- Evaluation of the visual field (A:III)(a)

Management recommendations are described in the main body of the guideline document.

Follow-up Evaluation

Patients with primary open-angle glaucoma should receive follow-up evaluations and care to monitor and treat their disease according to the guidelines for follow-up summarized in Tables 4, 5 and 6 of the guideline document.

History

- Ocular history (A:III)(a)
- Systemic medical history (B:III)(a)
- Local or systemic problems with medication (A:III)(a)
- General assessment of the impact of visual function on daily living (B:III)(b)
- Frequency and time of last intraocular pressure-lowering medications, and verification of appropriate use of medications (B:III)(a)

Physical Examination

- Visual acuity in each eye (A:III)(a)
- Slit lamp biomicroscopy (A:III)(a)

- Intraocular pressure (IOP) in each eye (A:III)(a)

Surgical Procedures and Postoperative Care

Laser Trabeculoplasty

The ophthalmologist who performs the surgery must ensure that the patient receives adequate postoperative care (A:III)(c). The plan for care prior to and after laser trabeculoplasty should include the following elements:

- Informed consent prior to surgery (A:III)(c)
- At least one preoperative evaluation by the surgeon (A:III)(a)
- At least one intraocular pressure check within 30 to 120 minutes of surgery (A:I)(a)
- A follow-up examination within 2 weeks of surgery (A:III)(a)
- A follow-up examination 4 to 8 weeks postoperatively (A:II)(a)

Filtering Surgery

The ophthalmologist who performs the surgery must ensure that the patient receives adequate postoperative care (A:III)(c). The plan for care before and after filtering surgery should include the following elements:

- Informed consent prior to surgery (A:III)(a)
- At least one preoperative evaluation by the surgeon (A:III)(a)
- Use of topical corticosteroids in the postoperative period, unless contraindicated (A:I)(a)
- Follow-up evaluation on the first postoperative day (12 to 36 hours after surgery) and at least once from the second to the seventh postoperative day to evaluate the visual acuity, intraocular pressure and status of the anterior segment, including the anterior chamber angle where appropriate (A:II)(a)
- In the absence of complications, two to five additional routine postoperative visits during a 6-week period to evaluate the visual acuity, intraocular pressure, and the status of the anterior segment, including the anterior-chamber angle where appropriate (A:III)(a)
- More frequent follow-up visits, if necessary, for patients with a flat or shallow anterior chamber or with other postoperative complications (A:III)(a)

Counseling/Referral

- Patients should be educated about the disease process, the rationale and goals of intervention, the status of their condition, and the relative benefits and risks of alternative interventions so that they can participate meaningfully in developing an appropriate plan of action (A:III)(b)
- Patients should be instructed in the proper techniques for taking and using medication to minimize side effects and complications (B:II)(c)
- Patients should be encouraged to alert their ophthalmologists to physical or emotional changes that occur when taking glaucoma medications (A:III)(c)
- Patients with significant visual impairment or blindness should be referred to, and encouraged to use, appropriate low-vision rehabilitation and social services (A:III)(c)

Definitions:

The panel rated the importance to the care process for each recommendation, the strength of evidence in the available literature to support the recommendations, and the feasibility or the likelihood that the indicator in question can be abstracted from a review of the patient's medical record or the administrative (billing and enrollment) data.

The ratings of importance to the care process are divided into three levels, designated "A," "B" and "C," with A defined as "most important," B defined as "moderately important" and C defined as "relevant, but not critical."

The ratings of strength of evidence are also divided into three levels. Level I provides strong evidence in support of the statement. The design of the study allowed the issue to be addressed, and the study was performed in the population of interest, executed in such a manner as to produce accurate and reliable data, and analyzed using appropriate statistical methods. The study produced either statistically significant power and/or narrow confidence limits on the parameters of interest. Level II provides substantial evidence in support of the statement. Although the study has many of the attributes of one that provides Level I support, it lacks one or more of the components of Level I. Level III provides a consensus of expert opinion in the absence of evidence that meets Level I and II.

The ratings of feasibility indicate the likelihood that the indicator in question can be abstracted from a review of the patient's medical record or the administrative (billing and enrollment) data. A rating of (a) is defined as high feasibility, (b) defined as moderate feasibility, and (c) defined as low feasibility.

CLINICAL ALGORITHM(S)

A clinical algorithm for the management of patients with primary open-angle glaucoma is provided in the guideline document.

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each recommendation (see Major Recommendations)

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Overall:

Prevention of vision impairment in patients with or at risk for developing primary open-angle glaucoma.

Specific:

- The progression of glaucomatous optic neuropathy is inhibited by reducing intraocular pressure.
- Laser trabeculoplasty increases aqueous outflow and provides a clinically significant reduction of intraocular pressure in more than 75% of initial treatments of previously unoperated eyes.
- Filtering surgery often reduces the intraocular pressure and the need for medical treatment. The success rate of filtering surgery alone or combined with medical therapy in a previously unoperated eye averages 85% to 95% at 2 years. The 5-year results indicate 80% success in African American patients and almost 90% success in Caucasian American patients.
- The use of adjunctive antifibrosis agents in primary filtering surgery of phakic patients appears to yield lower intraocular pressure measurements and to reduce the need for supplemental medical therapy.
- Adjunctive use of antiproliferative agents (5-fluorouracil or mitomycin C) improves the success of repeat filtering surgery in lowering intraocular pressure and of filtering surgery in pseudophakia, aphakia, and other types of complicated glaucoma.

Subgroups Most Likely to Benefit:

1. Patients at risk secondary to age, race (e.g., African American)
2. Patients with a family history of glaucoma
3. Patients with low diastolic perfusion pressures (diastolic blood pressure minus intraocular pressure) who appear to be at higher risk for primary open-angle glaucoma (POAG)

POTENTIAL HARMS

- Side effects of topical ocular glaucoma medications may be severe, and occasionally even fatal in highly susceptible individuals. Patients should be educated about eyelid closure and nasolacrimal occlusion when applying topical medications to reduce systemic absorption.
- The amount of medical treatment required for glaucoma is seldom reduced after trabeculoplasty. Results from long-term studies indicate that 30 percent to more than 50 percent of eyes require additional surgical treatment within 5 years after laser trabeculoplasty, and the success rates vary with race.
- There is an increased risk of problems and complications such as intraocular pressure spikes with repeat laser trabeculoplasty.
- While long-term control is often achieved with filtering surgery, many patients will require further therapy, or a reoperation, which carries a lower success rate.
- The use of adjunctive antifibrosis agents in primary filtering surgery of phakic patients is associated with significant complications such as bleb leaks, blebitis, endophthalmitis, and hypotony, which is especially likely to cause maculopathy in young myopes.

Subgroups Most Likely to be Harmed:

In eyes that have undergone previous cataract surgery involving the conjunctiva, the success rate of initial glaucoma filtering surgery is reduced.

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

Preferred Practice Patterns provide guidance for the pattern of practice, not for the care of a particular individual. While they should generally meet the needs of most patients, they cannot possibly best meet the needs of all patients. Depending on a host of medical and social variables, it is anticipated that it will be necessary to approach some patients' needs in different ways. The ultimate judgment regarding the propriety of the care of a particular patient must be made by the physician in light of all the circumstances presented by the patient. Adherence to these Preferred Practice Patterns will certainly not ensure a successful outcome in every situation. These guidelines should not be deemed inclusive of all proper methods of care or exclusive of other methods of care reasonable directed at obtaining the best results.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Living with Illness

IOM DOMAIN

Effectiveness
Patient-centeredness
Safety

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

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ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2000 Sep

GUIDELINE DEVELOPER(S)

American Academy of Ophthalmology - Medical Specialty Society

SOURCE(S) OF FUNDING

American Academy of Ophthalmology (AAO)

GUIDELINE COMMITTEE

Glaucoma Panel; Preferred Practice Patterns Committee

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Names of Committee Members: Glaucoma Panel: Joseph Caprioli, MD, Chair; Douglas E. Gaasterland, MD; Ronald L. Gross, MD; Henry D. Jampel, MD; Allan E. Kolker, MD; Kathleen A. Lamping, MD; Carl V. Migliazzo, MD; Paul P. Lee, MD, Methodologist; Michael Álcantar, Patient Representative.

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline. It updates the previous guideline first issued in 1989 and updated in 1992 and 1996 (San Francisco [CA]: American Academy of Ophthalmology; 1996. 28 p.).

This document is valid for 5 years from the date released unless superseded by a revision. All Preferred Practice Patterns are reviewed by their parent panel annually or earlier if developments warrant.

GUIDELINE AVAILABILITY

Electronic copies: Available from the [American Academy of Ophthalmology \(AAO\) Web site](#).

Print copies: Available from American Academy of Ophthalmology, P.O. Box 7424, San Francisco, CA 94120-7424; telephone, (415) 561-8540.

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This summary was completed by ECRI on November 20, 2000. The information was verified by the guideline developer on December 20, 2000.

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Date Modified: 5/10/2004

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